

ACTA ASTRONAUTICA

Journal of the International Academy of Astronautics*

CONTENTS

Preface		ix
<i>Invited Lecture</i> Space and Humanity	U. R. Rao	1
I. THE SYSTEM		
<i>I. 1. Space Transportation</i> Overcoming the launch crisis: a challenge for ELVs	Klaus Iserland	9
<i>I. 2. Space Stations and Platforms</i> Identification of large structures on orbit: a survey Eugene E. Denman, T. K. Hasselman, Jer-Nam Juang, John L. Junkins, Manohar Kamat, C. T. Sun, Firdaus Udwadia and V. B. Venkayya		21
International interface design for Space Station Freedom: challenges and solutions	Richard E. Mayo, Gordon R. Bolton and Daniele Laurini	29
Man systems aspects in the design concept of the Columbus Man-Tended Free-Flyer (MTFF)	Helmut Friedrich, Manfred Baune and Jacqueline Baune	39
Telescience and microgravity: impact on future facilities, ground segments and operations	R. Monti	51
II. HARD AND SOFT TECHNOLOGIES		
<i>II. 1. Technology Applications</i> Technology forecast and applications for autonomous, intelligent systems	Henry Lum Jr and Ewald Heer	63
The NASA technology push towards future space mission systems	Stanley R. Sadin, Frederick P. Povinelli and Robert Rosen	73
<i>II. 2. Astrodynamics</i> The history and background of astrodynamics	Victor Szebehely	79

*Continuation of Astronautica Acta—publication of the International Academy of Astronautics terminated with Volume 18, Issue 6, November/December 1973. Additional information on the Supplement to Volume 18 is available from Pergamon Press.



PERGAMON PRESS

Oxford · New York · Beijing · Frankfurt · São Paulo · Sydney · Tokyo · Toronto

INDEXED IN Current Contents, BIOSIS Database, Engng Ind. Monthly & Author Index, World Aviation Directory, PASCAL-CNRS Database

ISSN 0094-5765
AASTCF 20 1-228 (1989)

Optimal deployment of spacecraft appendages	S. Kalaycioglu and A. K. Misra	83
Dynamics of multibody systems—a brief review	Jens Wittenburg	89
Autonomous geostationary stationkeeping system: optimization and validation	P. Maute, B. Blancke, J. Ph. Jahier and F. Alby	93
Orbit computation system for "IRS"	P. Rajendra Prasad, S. Venkateswara Rao, Ananth Krishna, P. Padmanabhan and M. G. Chandrasekhar	103
II. 3. Space Power and Propulsion		
The next generation rocket engines	Rudi Beichel, Charles J. O'Brien and James P. Taylor	111
Advanced air-breathing propulsion concepts for winged launch vehicles	U. M. Schoettle, H. Grallert and F. A. Hewitt	117
III. THE UTILIZATION		
III. 1. Space Exploration		
The high-throughput X-ray mission (XMM) and its X-ray mirror system	J. Ellwood and W. Egle	131
III. 2. Applications		
Future directions in technology development: increased use of space as a facility	Judith H. Ambrus, Leonard A. Harris, Jack Levine and Richard W. Tyson	139
Remote sensing strategies for global resource exploration and environmental management	Frederick B. Henderson III	149
New SPOT generation	M. Arnaud	165
Application of satellite data for monitoring degradation of tidal wetlands of the Gulf of Kachchh, Western India	Shailesh Nayak, Anjali Pandeya, M. C. Gupta, C. R. Trivedi, K. N. Prasad and S. A. Kadri	171
Growth of GaAs from a free surface melt under controlled arsenic pressure in a partially confined configuration	H. C. Gatos, J. Lagowski and Y. Wu	179
Advanced architectures and the required technologies for next-generation communications satellite systems	Ray Arnold and F. Michael Naderi	185
Land mobile satellite services in Europe	P. Bartholomé, G. Berretta and R. Rogard	197

Countrywide Classroom: the use of space for education	E. V. Chitnis	203
Space debris—origin, evaluation and collision mechanics	D. Rex, P. Eichler, U. Soppa, J. Zuschlag and A. Bade	209
Perspectives on the international commercial space infrastructure	Rajiv Kohli and Michael Harr	217
Observations on the vaporization and burning of fuel droplets at reduced gravity during parabolic flights	C. Chauveau and G. Monsallier	223
Author Index		I

